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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/769,534	01/30/2004	Alejandro Hurtado	42P17764	8641

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EXAMINER

HA, NATHAN W

ART UNIT PAPER NUMBER

2814

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/769,534

Applicant(s)

HURTADO, ALEJANDRO

Examiner

Nathan W. Ha

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,6,8,14,15 and 18-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,14,15,18,20 and 21 is/are rejected.
- 7) ☒ Claim(s) 4-6,8,19, 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn et al. (US 6,661,080, newly cited, hereinafter Glenn) and in view of Saito et al. (US 6,794,273, previously cited, hereinafter, Saito.)

In regard to claims 1 and 14, in fig. 4, Glenn discloses a method of making a device comprising:

selecting a dicing tap 29 which has adhesion feature which capable to function as an adhesive layer, the tap/adhesive has a thickness greater than a height of one or more bump electrodes 301 formed on the first side of the wafer 35;

applying the dicing tape to the first side of the wafer such that the adhesive layer contacts, conforms to the one or more bump electrodes; and

dicing the wafer from a second side of the wafer opposite the first side, the dicing extending into the tape layer a distance less than the thickness of the tape.

Glenn, however, does not include another layer, or adhesive layer, together with the tape.

Saito, in fig. 17, discloses an analogous device further includes an adhesive, or resin layer which covers the bumps. This resin further facilitates the process of cutting the wafer since it strengthens the edges where the blade goes through.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to include an extra resin layer in order to take the advantage as mentioned.

3. Claims 2 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn and Saito as applied to claims 1 and 14 above, and further in view of Kojima et al. (US 2002/0161100, previously cited, hereinafter, Kojima.)

In regard to claims 2 and 15, the above combination discloses all of the claimed limitations as mentioned above, except the wafer (substrate) is a double bumped wafer.

Kojima, in fig. 29, discloses an analogous device with a double bumped wafer (substrate). This substrate provides better connections to the external devices since connections can be made through the wafer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to substitute the substrate as taught by Kojima in order to facilitate connections between devices.

Claims 3, 18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn and Saito and Jokima as applied to claims 1 and 14 above, and further in view of Ueda (previously cited.)

In regard to claims 3 and 18, the above combination discloses all of the claimed limitation, except the adhesive or filler is formed by pressure roller in order to provide

better adhesion between layers. Ueda teaches using pressure roller to form adhesive sheet ([0042]) in order to facilitate the process since this method is commonly used in order to provide better adhesion.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use the commonly used method as taught by Ueda in order to take the advantage as mentioned.

In regard to claim 20, the above combination discloses all of the claimed limitations as mentioned above, except the thickness of the bumps and the wafer vary from 10-200 microns and 5-250 microns, respectively.

At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the thickness because applicant has not disclosed that these thicknesses provide an advantage, is used for a particular purpose, or solve a stated problem. One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally well with either shape because they perform the same function of positioning the module to the substrate.

Therefore, it would have been obvious to one of ordinary skill in the art to modify Ueda and Kojima's combination to obtain the invention as specify in the above claims.

Indeed, it has been held that mere dimensional limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed.

Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Note that the specification contains no disclosure of either the critical nature of the claimed dimensions of any unexpected results arising therefrom. Where patentability is aid to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

4. Claim 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn, Saito and Jokima and Ueda as applied to claims 1-14 above, and further in view of Milla et al. (US 2003/0180987, hereinafter, Milla).

In regard to claim 21, the above combination discloses all of the claimed limitations as mentioned above. Ueda further discloses mounting the wafer on a support member 4 and dicing the wafer into individual chips (claim 52). The combination, however, does not expressly disclose using dual- blade in the dicing process.

Milla, in fig. 4f, discloses an analogous device including element 416 and the chip 422. Milla further discloses using dual blade to dice the wafer in wafer saw 418 to prevent cracking and speed up the cutting process (section [0033]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use dual-blade saw as taught by Milla in order to prevent cracking and speed up the cutting process.

Allowable Subject Matter

5. Claims 4-6, 8, 19, and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed 9/01/06 have been fully considered but they are not persuasive. For instance, the Applicants argue that the combination of Glenn and Saito does not disclose an adhesive layer that is in contact and conform to the bump electrodes on a first side of a wafer, and further argue that the element 301 is not an electrode and is on a non-active of the chips.

Even though the element 301 of Glenn is described as a scribe line, but it could function as an electrode. It is formed on the surface of the die and protrudes from the surface of the die. The claim does not specifically claim that this electrode is an electrical electrode, for example. None of the claims recites that this electrode should be on an active surface of the device. In this case, the scribe line/electrode is used to protect the device from the sawing step. Furthermore, as previously mentioned, the tape is capable of functioning as an adhesive layer.

7. Applicants further argue that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references

themselves or in the knowledge generally available to one of ordinary skill in the art.

See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, even though the cited reference does not state the motivation as submitted by the office, but it would have been obvious to one of ordinary in the art to substitute these wafers since they are used to form semiconductor device. Either wafer is widely used in semiconductor package, however.

Conclusion

8. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

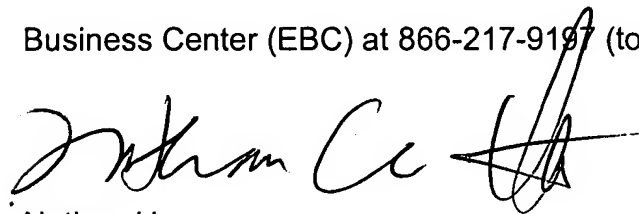
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Ha whose telephone number is (571) 272-1707. The examiner can normally be reached on M-TH 8:00-7:00(EST).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Nathan Ha', followed by a large, stylized flourish or checkmark.

Nathan Ha
Primary Examiner
November 8, 2006